

Comparisons of Job Characteristics

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation: Geoscientists, Except Hydrologists and Geographers (19-2042)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 72

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation: Geoscientists, Except Hydrologists and Geographers (19-2042)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Engineering and Technology	5.7	17.8	20.6	> Current knowledge level is likely sufficient
Geography	3.9	17.4	10.2	<< Extensive education and/or training may be required
Mathematics	9.2	16.0	15.3	0 Current knowledge level may be sufficient
Computers and Electronics	8.4	15.0	10.8	<< Extensive education and/or training may be required
Physics	4.3	14.4	11.4	< Expanded education and/or training may be required
Chemistry	4.8	10.3	10.2	0 Current knowledge level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 78

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation: Geoscientists, Except Hydrologists and Geographers (19-2042)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Reading Comprehension	10.7	16.0	15.7	0 Current skill level may be sufficient
Science	4.5	15.1	11.5	<< Extensive development of skills in this area may be required
Active Listening	11.0	13.6	12.8	0 Current skill level may be sufficient
Complex Problem Solving	9.1	11.9	14.8	> Skill level is likely sufficient
Mathematics	6.2	9.4	13.9	>> Skill level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 98			
Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151) Associated Occupation: Geoscientists, Except Hydrologists and Geographers (19-2042)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Written Comprehension	11.0	16.0	15.7	0	Current ability level may be sufficient
Written Expression	9.8	14.2	15.1	0	Current ability level may be sufficient
Inductive Reasoning	10.2	13.2	14.1	0	Current ability level may be sufficient
Deductive Reasoning	10.6	13.0	15.5	>	Current ability level is likely sufficient
Near Vision	11.1	12.8	12.5	0	Current ability level may be sufficient
Category Flexibility	9.0	12.3	13.8	>	Current ability level is likely sufficient
Mathematical Reasoning	6.3	10.3	12.8	>	Current ability level is likely sufficient
Flexibility of Closure	7.8	10.1	12.2	>	Current ability level is likely sufficient
Number Facility	6.3	9.1	10.1	>	Current ability level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 88
Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151) Associated Occupation: Geoscientists, Except Hydrologists and Geographers (19-2042)		
Work Activities	Exclusivity of Activity	
Adhere to safety procedures	12	
Advise clients or customers	19	
Analyze ecosystem data	69	
Analyze geological research data	87	
Analyze scientific research data or investigative findings	27	
Analyze technical data, designs, or preliminary specifications	47	
Collect scientific or technical data	30	
Communicate technical information	4	
Conduct geological surveys	89	
Conduct standardized qualitative laboratory analyses	62	
Conduct standardized quantitative laboratory analyses	62	
Confer with engineering, technical or manufacturing personnel	25	
Develop or maintain databases	30	
Develop plans for programs or projects	31	
Develop policies, procedures, methods, or standards	21	
Develop tables depicting data	33	

Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Draw prototypes, plans, or maps to scale	57
Evaluate engineering data	60
Explain complex mathematical information	30
Explore for oil or gas	92
Interpret aerial photographs	69
Interpret maps for architecture, construction, or engineering project	77
Perform statistical analysis in physical science or geological research	71
Prepare reports	8
Prepare technical reports or related documentation	22
Read maps	42
Read technical drawings	7
Resolve engineering or science problems	46
Understand engineering data or reports	48
Use computer aided drafting or design software for design, drafting, modeling, or other engineering tasks	58
Use computers to enter, access or retrieve data	3
Use drafting or mechanical drawing techniques	50
Use geographic positioning system (GPS)	81
Use geographical information system (GIS) software	72
Use knowledge of investigation techniques	16
Use knowledge of materials testing procedures	70
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use physical science research techniques	68
Use project management techniques	47
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17
Write business project or bid proposals	48

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 88

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)
Associated Occupation: Geoscientists, Except Hydrologists and Geographers (19-2042)

Tools and Technologies	Exclusivity
Audio and visual equipment	4
Business function specific software	1
Computer data input devices	2
Computer printers	2

Computers	1
Content authoring and editing software	1
Data management and query software	1
Forming tools	2
Geophysical and geotechnical instruments	23
Industry specific software	1
Measuring and layout tools	3
Rock and strata measuring equipment	47

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.